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NATIONAL ESTUARINE INVENTORY. HANDBOOK OF DESCRIPTORS

T. A. Wastler, et al

Federal Water Pollution Control Administration
Washington, D. C.

June 1968

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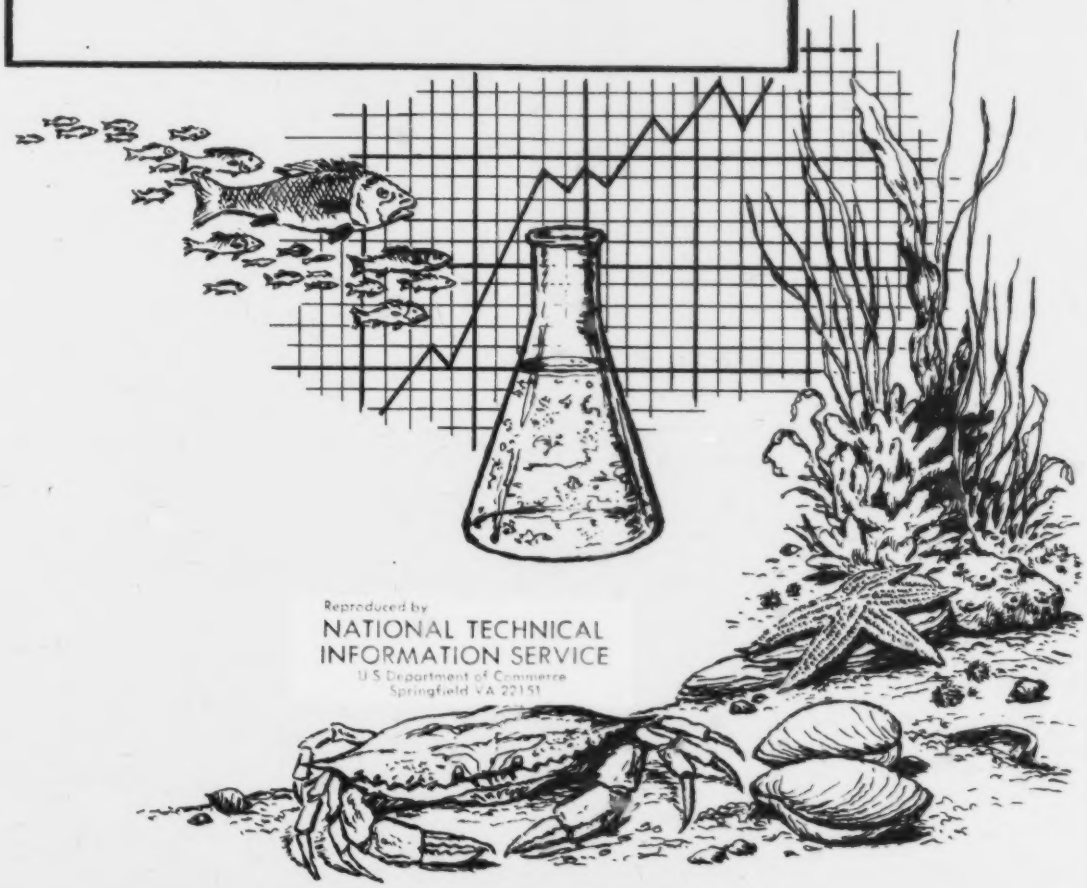
NATIONAL ESTUARINE INVENTORY

Handbook of Descriptors



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FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

107

NATIONAL ESTUARINE INVENTORY

Handbook of Descriptors

Prepared by

T.A. Wastler and L.C. de Guerrero

U.S. Department of the Interior
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
Division of Technical Services, Office of Estuarine Studies
Washington, D.C. 20242

June 1968

T67.2
G5 E

"In conducting the ... study, the Secretary shall assemble, coordinate, and organize all existing pertinent information on the Nation's estuaries and estuarine zones. . ."

Clean Waters Restoration Act of 1966

Section 5(g) (2)

PREFACE

The National Estuarine Inventory, being conducted as part of the National Estuarine Pollution Study, is a compilation of the available information on the coastal zones of the United States.

This inventory includes a broad spectrum of information ranging from the economic and ecological values of each estuarine system through the impact of man's use on each system to the needs for waste treatment to enhance water quality.

The Handbook of Descriptors presented here is the skeleton around which the information of the Inventory is organized. The Handbook consists of a set of tables showing the organization of the information together with descriptive material and information on precisely what data are presented in each table.

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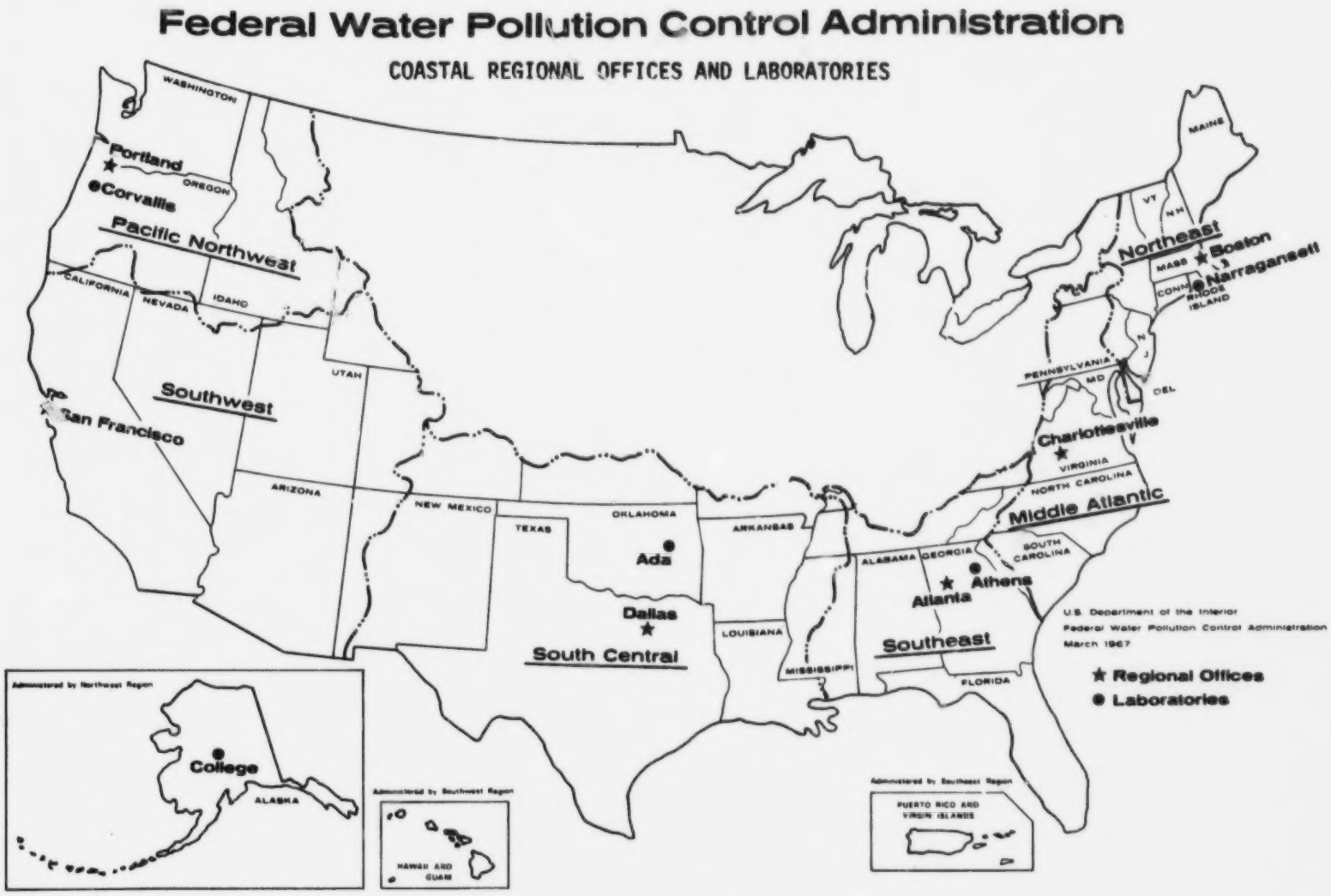

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INTRODUCTION

As part of the National Estuarine Pollution Study it is essential to describe the national estuarine system in terms of those parameters which are necessary to: identify quantitatively the present and potential uses of the estuarine resource; identify the present extent of pollution damage to beneficial uses of estuarine zones; and make possible quantitative summaries and comparisons among the individual estuarine components of the national system.

The following factors have guided the selection of descriptors:

1. The descriptors used should be absolute. The values of the descriptors from which ratios and percentages are formed are tabulated. Ratios and percentages are not entered. For example, instead of entering the percent of area in oyster-producing grounds, the total area and the area of the oystering grounds are entered. This approach permits flexibility in manipulating the information in the inventory.

2. The descriptors used should be conventional. They should be those which would be reported normally if information of a specific type has been collected on a particular system. For example, for systems in which ports are established, the total number of ships using

the port per year and the total number of tons loaded and unloaded should be readily available; if a sanitary water quality survey has been made, information on D.O., B.O.D., and waste discharge volumes and strengths would be expected. Such an approach permits ready assimilation of the available information into the inventory.

3. The descriptors must each describe some property of the estuarine zone which is related to water pollution and/or resource value. The information included must be broad enough to provide a thorough description of the national estuarine system as a water pollution problem and as a natural resource.

4. The descriptors generally must be numbers or indices capable of summarization in tables or figures. The total amount of information to be obtained, stored, and used will be so large that automatic data processing techniques will have to be used. It is necessary that all descriptors be amenable to this type of operation.

5. This inventory should provide a foundation for a continuing national estuarine inventory. The format in which the descriptors are stored must be flexible enough to permit additions and modifcations without major reworking of the system.

GUIDE FOR DATA COLLECTION AND TABULATION

General

Estuarine Classification System

To form a basis for assembling and organizing information on the estuaries and estuarine zones of the United States, the entire coastal area of the Nation has been divided into Estuarine Register Areas (ERA).

The object of this division has been to separate the coastal area into units within which the available information may be organized independently of other areas. The choice of boundaries for each system was based on consideration of the water pollution and resource management aspects of the systems involved and does not necessarily reflect a scientific or engineering classification of estuarine systems.

Each coastal system tributary to an ocean or sea is designated a primary system. Estuaries tributary to a primary system are designated as secondary systems; estuaries tributary to secondary systems are tertiary systems; etc. This identification scheme includes all coastal waters of the United States from the oceans to the limit of tidal effect.

Use 4 or 5-digit Standard Industrial Classification (SIC) codes to identify types of industries where pertinent.

References

A reference number is assigned to each report examined for this study. No attempt is made to arrange references in any particular fashion (i.e., alphabetically or chronologically); numbers are assigned as each reference is used.

For numbering purposes, to avoid confusion among regions, this system is used:

RNE-1 (Reference, Northeast, Number 1)

RH-1 (Reference, Headquarters, Number 1)

RBOR-1 (Reference, Bureau of Outdoor Recreation, Number 1)

The R designation is necessary to avoid confusion with the Estuarine Register Area (ERA) identification system.

The last page of this handbook provides space for briefly describing the references used.

Dates of Information Used

Much of the data included in this compilation is contained in statistical summaries published by Federal agencies or private organizations. Where such summaries are available, the statistics for each year since 1950 will be included as a separate tabulation.

Data published as summaries for periods greater than one year should be included for the years since 1950.

All other data indicated should be included for whatever years are available.

Supplemental Information

Provide a map or other identification, where needed, of the ERA showing the key sampling stations, waste outfalls which have an identifiable affect on the environment, and major circulation modifying structures.

Special Symbols

Every blank should be filled in. To avoid confusion with the use of zero, use the following symbols:

O = Value is zero;

X = Data should be available but has not been located;

Y = No information is available;

Z = Information is included elsewhere. For example, fishing statistics for a subsystem may be included in available statistics for the primary system.

Instructions for Completion of Tables

If necessary, additional information or comments may be included on the reverse of the page to which it pertains. For example, if additions to page 14, items 1.4. and 1.5. were given, the following would be shown:

(1) At the bottom of page 14, the notation "continued";

(2) On the reverse of page 14,

Item 1.4._____

Item 1.5._____

This information may be legibly handwritten rather than typed.

INSTRUCTIONS AND TABLES

1.1. Name

Identify each system by name. The most common name in local use should be used; if there is none in use, a name descriptive of the Estuarine Register Area (ERA) should be chosen. If several names are used locally, use the most common as the preferred name, and list others after it in parentheses.

1.2. Number

Use ERA number.

1.3. Location of Entrance to the Receiving System

The coordinates required are those of the arbitrary boundaries of the ERA. In Figures I and II, the geographical coordinates of the points A and B are the data required. In Figure II, for H-1-2, the coordinates of points C and D are the data required; for H-1-2-2, J and K are the appropriate points.

All measurements of shoreline length begin and end at these points.

1.4. Receiving Systems

Give the names of the receiving systems in order. In Figure II, if H-1-2-2 is the ERA being tabulated, list the names of H-1-2, H-1, and Ocean in order.

Figure I. (1)

1.1. Smooth Shoreline without Inlets

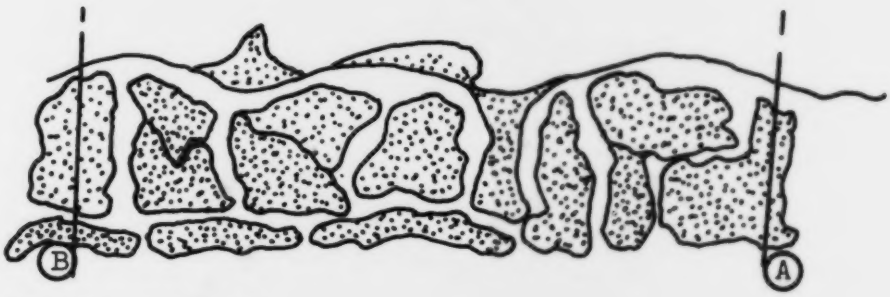
1.2. Smooth Shoreline with Inlets

1.3.Smooth Shoreline with Small Embayments

Figure I. (2)

2.1. Indented Shoreline without Islands

2.2. Indented Shoreline with Islands

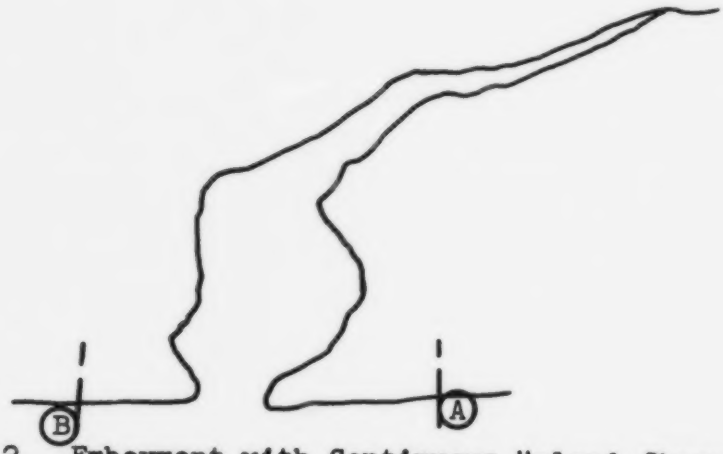


3. Marshy Shoreline

Figure I. (3)

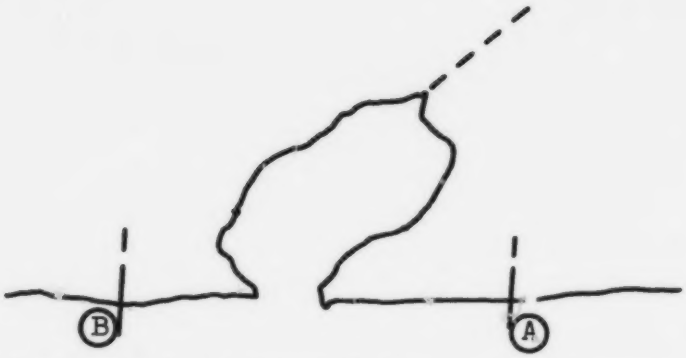
4. Unrestricted River Entrance

5.1. Embayment with Only Coastal Drainage

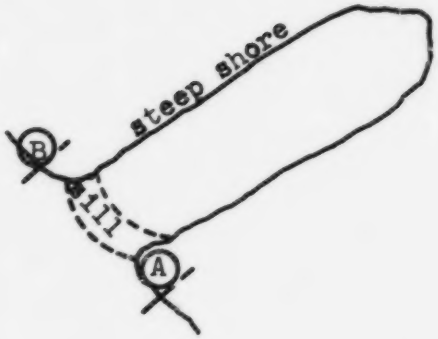


5.2. Embayment with Continuous Upland River Inflow

Figure I. (4)

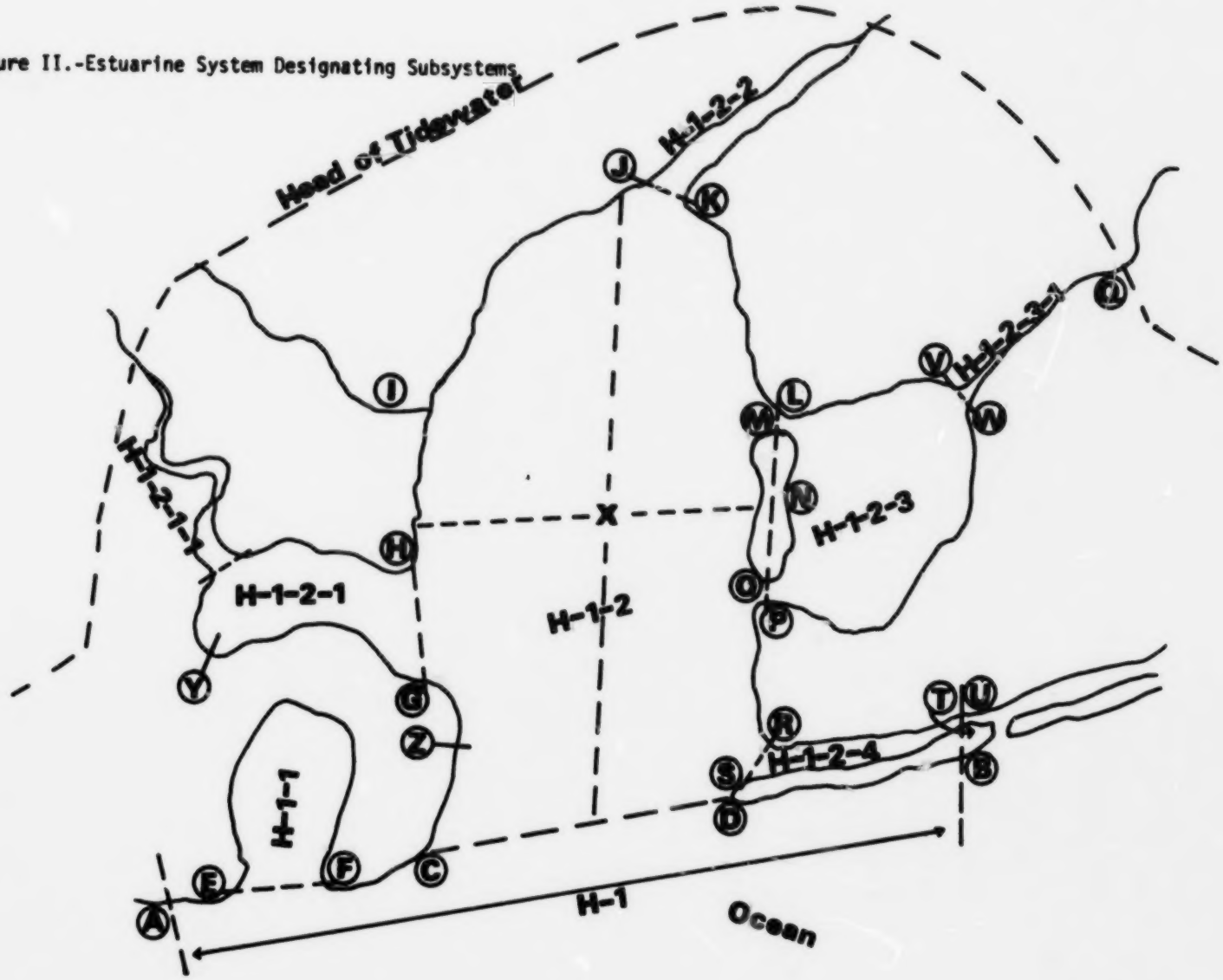


5.3. Embayment with Ephemeral River Inflow



6. Fjord

Figure II.-Estuarine System Designating Subsystems



1.5. Political Subdivisions

If the ERA is international, give the other nation in which it lies. Then list each State, County, and Congressional District in which the ERA lies. For example, Maryland, Charles, Prince Georges, St. Marys, 1,4; Virginia, King George, Westmoreland, 3,4.

1.6. General Description

State the general configuration as shown in the table below. In Figure II, H-1 is an "elongated embayment", category number 5.2; H-1-2-3 is a "round embayment", category number 5.2; H-1-2-1-1 is a"sinuous river channel", category number 4.

General Description of ERAs (Figure I)

1. Smooth Shoreline
   - 1.1. Without inlets
   - 1.2. With inlets
   - 1.3. With small embayments
2. Indented Shoreline
   - 2.1. Without islands
   - 2.2. With islands
3. Marshy Shoreline
4. Unrestricted River Entrance

5. Embayment

   5.1. With only coastal drainage

   5.2. With continuous upland river inflow

   5.3. With ephemeral river inflow

6. Fjord

ERA _____

NATIONAL ESTUARINE INVENTORY

Reference Number

1. Identification of Estuarine Register Area:

1.1 NAME _____ _____

1.2 NUMBER _____ _____

1.3 LOCATION OF ENTRANCE TO RECEIVING SYSTEM

Latitude _____ _____ _____
Longitude _____ _____ _____

1.4 RECEIVING SYSTEMS: _____ _____

_____ , _____

_____ , _____

1.5 POLITICAL SUBDIVISIONS: _____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

1.6 GENERAL DESCRIPTION: _____

Category Number: _____

2.1. Straight Line Distance

This is the straight line distance between the ERA boundary points shown in 1.3. On Figure II, for H-1, the primary estuary, this distance is that from A to B; for H-1-2-3, this distance is that from L to P; for H-1-2, this distance is that from C to D. In each case the distance can be calculated from the latitudes and longitudes of the respective points.

2.2. Tidal Shoreline Length

This is the shoreline length at MHW from one entrance location to the other entrace location, omitting lengths within subsystems. On Figure II, the tidal shoreline length of H-1 is the sum of the distances A to E; F to C; D to B. For H-1-2 the tidal shoreline length is the sum of D to S; R to P; O to M; L to K; J to H; and G to C. For H-1-2-3 the tidal shoreline length is the sum of O to M via N; P to W; and V to L. For H-1-2-4 the tidal shoreline length is the sum of T to S and R to U.

2.3. Number of Entrances

This is the total number of water connections at MHW between this ERA and the one to which it is tributary. On Figure II, for H-1, there is one entrance; for H-1-2-3, there are two entrances.

2.4. Total Water Length Across Entrances

This is the total water distance at the entrances at MHW. On Figure II, this distance is the sum of the lengths C to D and E to F ; for H-1, and the sum of O to P and L to M for H-1-2-3.

2.5. Controlling Depth for Navigation at Entrance

This is the maintained channel depth in those cases where a dredged channel exists, or the sill depth where no channel is dredged for navigational approach to the ERA. Where more than one entrance exists, the controlling depth of the deepest channel should be given.

2.6. Number of Subsystems

This is the total number of subsystems tributary to the ERA being tabulated. On Figure II, H-1 has a total of 9 subsystems, 8 of which are ERA s; for example, H-1-2-2 has no subsystems.

2.7. Number of Islands

Count the total number of islands in the ERA, excluding those in subsystems which will be tabulated separately. Where an island forms part of the boundary between ERA s, either (1) assign it to the lower order ERA, or (2) if the ERA s are of the same order, assign it to the one on which its uses have the greater impact. In Figure II, the island is assigned to H-1-2.

2.8. Total Area of Islands

Include total area of all islands and island groups in the ERA, excluding those in subsystems. Marsh areas not part of an island should be excluded under this heading.

2.9. Total Water and Marsh Area

This is the water area defined similarly to the Tidal Shoreline (2.2.); i.e., subsystem areas are excluded.

For ERAs opening into the ocean, assume their seaward extent to be the next fathom contour deeper than the controlling depth for navigation, as defined in Section 2.5. For example, if the value for Section 2.5. is 35 feet, the seaward extent of the ERA is at the 6-fathom contour.

2.10. Maximum Length and Width

These are approximations estimated from the overall appearance of the ERA. On Figure II, H-1-2 is described by the lengths of the two lines intersecting at X.

2.11. Artificial Circulation Modifying Structures Within the Estuary

The purpose of this series of descriptors is to gain an idea of how much the circulation of a system may have been changed by artificial structures. In deciding whether to include or exclude specific items, judgments must be made as to whether they are large enough to have an effect on circulation.

If the structures listed in 2.11.1. were completed after 1949, include the year of completion. If they were completed in 1949 or earlier, state only OLD in the table.

In those cases where a crossing is composed partially of a causeway and partially of piers, include the approximate lengths of each, where possible.

Total Buoyed Channels includes all channels in which buoys are maintained for navigation channels, including those which require dredging.

Dredged Channels includes the channel segments maintained by dredging.

In Table 2.11.2, include dates only for those areas in which (1) filling was completed after 1949, or (2) areas have been set aside for filling since 1949. For fills having completion dates earlier than 1950, state only OLD in the table. For example, if a spoil area of marshes on the shore was authorized for use in 1925 and was completely filled by 1954, the first three columns in the table would read 12, OLD, 1954.

2.12. Uncontrolled Changes

Provide as much information as possible summarized in the categories listed. Space is provided below the table (page 23) to discuss the consequences of the changes, i.e., dollars of damage.

ERA_____

Reference Number

2. Area Description

2.1 STRAIGHT LINE LENGTH AT ENTRANCE TO RECEIVING SYSTEM:

_____ (Statute Miles, ft.) _____

2.2 TIDAL SHORELINE LENGTH (MLW, MLLW):

_____ (Statute Miles, ft.) _____

2.3 NUMBER OF ENTRANCES TO RECEIVING SYSTEM:

_____ _____

2.4 TOTAL LENGTH OF WATER DISTANCE ACROSS ENTRANCES:

_____ (Statute Miles, ft.) _____

2.5 CONTROLLING DEPTH FOR NAVIGATION:

_____ Feet _____

2.6 NUMBER OF SUBSYSTEMS:

a. Register Area _____ _____

b. Total _____ _____

ERA _____

Reference Number

2.7 NUMBER OF ISLANDS: _____ _____

2.8 TOTAL AREA OF ISLANDS: _____ _____

_____ (acres) _____

2.9 TOTAL WATER AND WETLAND AREA:

A. MHW (MHHW) _____ (acres) _____

B. MLW (MLLW) _____ (acres) _____

C. MARSH _____ (acres) _____

D. AT FATHOM CONTOURS

1. _____ (acres) _____

2. _____ (acres) _____

3. _____ (acres) _____

4. _____ (acres) _____

5. _____ (acres) _____

6. _____ (acres) _____

7. _____ (acres) _____

8. _____ (acres) _____

9. _____ (acres) _____

10. _____ (acres) _____

20. _____ (acres) _____

40. _____ (acres) _____

60. _____ (acres) _____

80. _____ (acres) _____

100. _____ (acres) _____

> 100. _____ (acres) _____

2.10 a. Maximum Length _____ _____

b. Maximum Width _____ _____

2.11 Artificial Circulation-Modifying Structures within the ERA

2.11.1. Structures

Type	Year Completed	Length (ft.)	Reference Number
Jetties, Dikes, and Breakwaters			
Causeways			
Pier Bridges			
Total Buoyed Channels			
1. > 35 Ft. Depth			
2. 12-35 Ft. Depth			
3. < 12 Ft. Depth			
Dredged Channels			
1. > 35 Ft. Depth			
2. 12-35 Ft. Depth			
3. < 12 Ft. Depth			

Number of Canal and Cut Entrances _____

Reference Number _____

2.11.2. Fills

Type*	Year		Area Covered (acres	Reference Number
	Started	Ended		

*

10 Spoil Area. Surrounded by Water

11 Spoil Area. Contiguous to Shore

12 Spoil Area. Onshore (including marsh)

21 Land Fill. For land development (Reclamation)

22 Land Fill. Garbage Disposal

23 Land Fill. Industrial

2.12. Uncontrolled Structural Changes

Reference Number

a. Natural Erosion or Accretion

1. Period _____ years _____

2. Extent _____ (acres, s.mi) (lost, gained) _____

3. Cause: _____

_____ _____

b. Catastrophic (storms, earthquakes, tsunamis)

1. Time _____ _____

2. Extent _____ _____

3. Cause: _____ _____

3. Managing Entities

3.1. Political Entities

Show the political entities in which each ERA lies, and the amounts of area (land and water) actually owned and/or controlled.

3.2. Special Districts and Management Compacts

List any special districts and management compacts having purposes or responsibilities related to the estuarine resource, e.g., soil conservation districts, river basin compacts, zoning commissions, State-Federal management agreements, etc.

3.3. Zoning and Regional Planning

Show the miles of shoreline which are presently subject to zoning and/or are included in an area development plan.

KMA

3.1. Political Entities

Political Subdivisions	Legally-Owned			Reserved (Zoned)						
	Operating Facilities (Acres)	Non-operating Facilities (Acres)	Parks (Acres)	Spoil Area (Acres)	Navigation Channels (Acres)	Fisheries (Acres)	Wildlife Preserves (Acres)	Mineral Recovery (Acres)	Others	Reference Number
Nations - U.S.A.										
States										
Counties										
Municipalities										

3.2. Management Compacts

Name	Membership	Purpose	Reference Number

3.3. Zoning or Regional Development Plan

Zoning_____ miles (linear)

Regional Plan_____Square miles

ERA_____

4. Hydrology

4.1. Flow of Rivers

Describe only the hydrology of those rivers and streams entering the ERA directly. Do not include any entering through a subsystem. On Figure II, only the stream I is included in the tabulation for H-1-2; the single streams entering through the subsystems H-1-2-2 and H-1-2-1-1, for example, are listed in the tabulations for H-1-2-2 and H-1-2-1-1, respectively.

4.2. Major Flow Regulation Structures

This tabulation is to determine whether the discharge of inflowing streams is regulated, and, if so, how much control is exerted.

There is no need to list all the flow-regulation structures on a river. The degree of regulation will be apparent from the information in Table 4.1. For each river entering the ERA, information of these types can be listed by number.

Type of Structure: 1. High Dams, 2. Locks and Dams, 3. Low Dams, 4. Pumped Storage. Show numbers of all types present.

Purpose of Regulation

1. Water Supply, 2. Low Flow Augmentation, 3. Flood Control, 4. Navigation, 5. Power Generation, 6. Recreation, 7. Sediment Control, 8. Diversion. For multi-purpose regulation, show all numbers pertinent.

Active Storage

This is the storage available in the reservoir, or reservoir system for the design purposes of the system. Active storage for low dams is zero.

Starting Date

For structures completed before 1950, state OLD in the Table. For structures completed in 1950 or later, include the month and year regulation began.

4.3. Springs in the ERA

Give the locations and estimated volumes of any major springs entering the system directly.

4. HYDROLOGY

4.1. Flow of Rivers

Drainage Area (mi^2)			River Inflow (cfs)				
					Annual Range		
River Name	Total	Below Head of Tide	Period (years)	Mean Annual	Minimum	Maximum	Reference Number

4.2 Major Flow Regulation Structures

River Name	Type of Structure	Purpose of Regulation	Active Storage (acre-feet)	Starting Date		Operating Agency	Reference Number
				MO.	YR.		

ERA _____

4.3. Springs in the ERA

Location		Volume (cfs)	Salinity (ppt)	Reference Number
Latitude	Longitude			

5. Stage of Development

5.1. Stage of Development - County Statistics

List values for each county contiguous to the ERA. (There will be duplication of county listings where there is more than one ERA in a single county.) Include cities not in counties. For example, Baltimore City is governmentally separate from Baltimore County.

5.2. Urban Population:

(a) are those communities which are actually on the shoreline of the ERA;

(b) are those communities which are not on the shoreline but which discharge wastes to the ERA. (Do not include those communities which discharge to a subsystem. They will be included in the description of the subsystem.);

(c) are small communities, surburban areas, etc., which are not included as municipalities.

The object here is to obtain an idea of how heavily built up an estuary is, not how much waste goes into it.

5. STAGE OF DEVELOPMENT

5.1. County Statistics

County Name	Population	Value Added in Manufacture	Shipping Revenue	Truck and Rail Freight Revenue	Number of Farms	Total Acreage	Cropland Acreage	Irrigated Acreage	Reference Number

5.2. Urban Population

Type	Population	Number of Communities
a. Municipalities directly on the estuarine system		
b. Municipalities discharging wastes to the estuarine system		
c. Non-municipal directly on the system		

6. Physical Oceanography

Type of tide means: Equal semidiurnal; unequal semidiurnal; diurnal, or mixed.

Tidal prism at the entrance is the difference in volume of the system between MHW and MLW (or MHHW and MLLW).

Estimated flows through the entrance are intended to provide estimates of gross and net circulation through the system. Values included in this table should be based on actual data taken in the prototype; they should not be estimates based on estimates of river inflow and volume of the system. These values should each be averages over at least one complete tidal cycle.

6. PHYSICAL OCEANOGRAPHY

Reference Number

6.1. Type of Tide _____ _____

6.2. Range at Entrance: Mean _____ ft. _____

Spring _____ ft. _____

Neap _____ ft. _____

6.3. Maximum Range:

Location: _____ miles from entrance _____

Mean _____ ft. _____

Spring _____ ft. _____

Neap _____ ft. _____

6.4. Currents at Entrance (knots) _____

		Surface	Bottom	
Flood:	Maximum			
	Mean			
Ebb:	Maximum			
	Mean			

6.5. Tidal Prism at Entrance:

Mean _____ $ft.^3$ _____

Spring _____ $ft.^3$ _____

Neap _____ $ft.^3$ _____

6.6. Estimated Flow through Entrance

Date		Rate of Flow (cfs)		Reference Number
Month	Year	Inflow	Outflow	

7. Water Quality

A single page table is included for each water quality parameter. Those parameters of particular interest are Temperature, Salinity, (or Conductivity or Chlorides), Dissolved Oxygen, B.O.D., Coliform bacteria (including Fecal), Suspended Solids, Phosphorus, Nitrogen, Chlorophyll, pH, and Turbidity. Any other parameters which are of significance for a particular ERA should be included. For example, "Remarks" may include floating debris, offensive odor, or color.

Data at key sampling stations should be included. Selection of these stations is a matter for individual judgment, and the number included for each ERA will vary with the size and complexity of the ERA (and with the number of locations sampled). Suggested key stations are:

a. Entrance to lower order system: On Figure II, for H-1-2, a station at the Section CD would be appropriate; for H-1-2-2 a station at Section JK would be appropriate.

b. Near major waste outfalls: On Figure II, a station near outfall Z would be a key station for H-1-2; a station near outfall Y would be a key station for H-1-2-1.

c. Along a major axis of the ERA: If the ERA has an identifiable axis (such as H-1-2), several stations along this axis can be selected as key stations.

All locations should be expressed in terms of latitude and longitude to a tenth of a minute when available.

7. WATER QUALITY

a. Parameter _____

b. Units _____

7.1. Annual Variation: For year _____

Key Station Location Latitude	Longitude	Depth	Minimum	Mean /1	Maximum	Reference Number

Remarks: _____

_____

/1 Identify Type _____

7.2. Seasonal Values /1

a. Parameter _____

b. Units _____

River Discharge	Date	Tide Range (ft.)	Location		Depth (ft.)	Left Side	Center	Right Side	Reference Number
			Latitude	Longitude					

Remarks : _____

_____

/1 Bimonthly means

ERA_____

8. Sediments and Sedimentation

Type of Bottom refers only to permanently submerged areas. (In some cases unknown may include the entire bottom area.)

If estimates are available for several time periods since 1950, include a table for each period.

Include separate tables on the distribution of dredged materials only if the distribution has changed since 1950.

ERA _____

8. SEDIMENTS AND SEDIMENTATION

8.1. Bottom Characteristics

		Reference Number
Date of Estimate	_____	
Type of Bottom	_____	_____
a. Total Area (acres)	_____	_____
	% of Total Area	
b. Hard (rock, shell, coral, gravel)	_____	_____
c. Sand or Clay	_____	_____
d. Vegetation	_____	_____
e. Muds and sludges	_____	_____
f. Dredged	_____	_____
g. Unknown	_____	_____

8.2. Sediment Quantities

Date of Estimate	_____	
a. Total entering (tons/yr)	_____	_____
(1) Waste discharges	_____	_____
(2) Tributary runoff	_____	_____
(3) Ocean inflow	_____	_____
(4) Return of dredged material	_____	_____
(5) Natural local	_____	_____
(6) Local agricultural	_____	_____
(7) Local construction	_____	_____
(8) Others	_____	_____
b. Total deposited (tons/yr)	_____	_____
c. Dredged from navigation area (yd^3)*	_____	_____
(1) Removed from system	_____	_____
(2) Deposited in on-shore spoil areas	_____	_____
(3) Redeposited in estuary	_____	_____

* Sediment density = _____ (lbs/ft^3)

9. Uses

The statistics listed are only for the ERA being tabulated. Do not include use values for subsystems. For statistics obtained on a county basis, include values for the entire county contiguous to each ERA.

9. USES

Reference Number

9.1. Commercial Shipping for _____ (year)

a. Imports plus exports (short tons) _____ _____

b. Domestic traffic (short tons) _____ _____

c. Number of ships handled _____ _____

d. Value of cargo earnings (dollars) _____ _____

9.2. Commercial Fishing for _____ (year)

a. Fishing vessels (number) _____ _____

b. Fishing boats (number) _____ _____

c. Fishing catch:

Type of Catch		Total Annual Landings Pounds	Total Annual Landings Value	Source of Information
Finfish:	(1) Oceanic entirely			
	(2) Transient			
	(3) Anadromous			
	(4) Resident			
Shellfish:	(1) Oysters			
	(2) Clams			
	(3) Shrimp			
	(4) Lobster			
	(5) Crabs			
	(6) Scallops			
	(7) Other			
Bait:	(1) Fish			
	(2) Others			

ERA _____

9.3. RECREATION for _____(year)

Reference Number

a. Beaches

(1) Total length (acres) _____ _____

(2) Public beaches (acres) _____ _____

(3) Usage (participation days) _____ _____

b. Public access shoreline (linear st. mi.) _____ _____

c. Boating

(1) Boat launching ramps (number) _____ _____

(2) Mooring facilities (number of slips or moorages available) _____ _____

(3) Marinas (number) _____ _____

(4) Boat registrations (number) _____ _____

d. Fishing

(a) Estimated fishermen (Participation days) _____ _____

(b) Annual expenditure for fishing (dollars) _____ _____

e. Hunting

(a) Licenses sold (number) _____ _____

(b) Duck stamps sold (number) _____ _____

(c) Expenditure to hunt (dollars) _____ _____

(d) Number taken

(1) Birds _____ _____

(2) Furbearers _____ _____

(3) Others _____ _____

(e) Hunters (part days) _____ _____

9.4. PORT FACILITIES OF FEDERAL GOVERNMENT FOR _____ (year)

Agency	Number of Installations	Feet of Dockage	Reference Number
Navy			
Coast Guard			
Coast and Geodetic Survey			
Corps of Engineers			
Other			

9.5. AIRPORTS FOR _____ (year)

Type of Use	Number of Installations	Area (acres)	Reference Number
Seaplane landing			
Approaches			
Filled for airport			
Reserved for expansion			

9.6. PIPELINE CROSSINGS (number) _____

(year) _____

9.7. WATER SUPPLY WITHDRAWALS FOR _____ (year)

Use	Number of Users	Total Volume (mgd)	Reference Number
Industrial Process			
Cooling			
Desalination			
Municipal Water Supply			

9.8. COMMERCIAL HUNTING AND WILDLIFE MANAGEMENT

Year	Type /1	Areas (acres) Managed		Numbers Caught	Annual Value of Catch (dollars)	Reference Number
		Refuges	Commercial			

/1 Identify species: Furbearers (Muskrats, Nutria), Birds, Turtles, Frogs, etc.

9.9.1. PRESENT AQUACULTURE (includes oyster leases)

Year	Type of Crop	Area (acres)	Annual Value of Crop (dollars)	Reference Number

9.9.2. POTENTIAL AQUACULTURE

Type of Crop	Acres Available at Present Water Quality	Acres Available at WQS Level	Reference Number

9.10. MINING AND MINERAL RECOVERY FOR _____(year)

a. Dredging

Number of Operations	Type of Material	Production (short ton)	Value (dollars)	Area Used (acres, mi^2)	Reference Number
Actual					
Potential					

b. Wells (other than water)

Number	Type of Material	Production (bbl)	Value (dollars)	Water depth at wells (ft.)	Reference Number
Actual					
Potential					

9.10. cont'd.

c. Recovery of Minerals from Water

Number of Operations	Materials Recovered	Volume of Water Used (mgd)	Production (tons)	Annual Value (dollars)	Reference Number

d. Mines

Number	Material Recovered	Technique Used	Production (tons)	Value	Reference Number
Actual					
Potential					

9.11. HABITAT FOR ESTUARINE-DEPENDENT SPECIES

a. Aquatic Biota	Relative Abundance of /1			
	Eggs and Larvae	Juveniles	Adults	Reference Number
Finfish: (1) Anadromous				
(2) Transient				
(3) Resident Freshwater				
Saltwater				
Shellfish: (1) Oysters				
(2) Clams				
(3) Scallops				
(4) Spiny Lobsters				
(5) Shrimp				
(6) Crabs				
(7) Other				
Other /3				

/2 Identify:

/1 1 - Absent 4 - Common /3 Cyclical, for example

2 - Rare 5 - Abundant

3 - Uncommon

9.11 contd.

b. Others

	Area Under Management (acres) Federal	State	Local	Private	Current Population no./acre	Reference Number
(1) Waterfowl: /1						
(a) Migratory Species						
(b) Resident Species						
(c) Endangered Species						
(2) Furbearers /1						
(3) Others /1						

/1 Identify species:

(1) (a)

(1) (b)

(1) (c)

(2)

(3)

10. Sources of Pollution

10.1. River Inflow

Give appropriate data for each river or stream not entering through a subsystem. If possible, give a year-round set of data, and bimonthly means if the data base is adequate.

10.2. Municipal and Domestic Wastes

The summary table should include all sources of municipal and domestic wastes discharged directly to the ERA (not into a subsystem), and obviously must include rough estimates of the minor discharges. On Figure I, for H-1-2, the summary table will include outfall Z; but will not include outfall Y.

10.2b. Data Table for Major Waste Discharges

Each major waste discharge should be reported individually on the data table. Judgment must be exercised as to which waste sources should be reported individually; the reported dischargers should account for over 90 per cent of the waste load entering an ERA.

10.3. Industrial Wastes

The same general comments in 10.2 also apply here. Special types of waste treatment should be identified separately. These tabulations should include process wastes only, if cooling water discharges can be tabulated separately. Otherwise all plant wastes are included here.

10.4 Agricultural Land Drainage

Include Agricultural Land Drainage (ALD) from contiguous counties only. That from upstream areas will appear in the River Inflow. (10.1)

10.5 Thermal Loads

The major heated effluents from power plants and industrial operations discharging directly to the ERA should be tabulated, not those entering through subsystems.

10.7 Recreational Facilities

10.8 Special Problems

Any special waste discharge problems should be identified and estimates of the magnitude of the problem included where possible. For example, this may include heavily used beaches with no sanitary facilities.

10. SOURCES OF POLLUTION

10.1. River Inflow and Quality at Last Sampling Station Above Tidewater

River Name and Mile	Date mo day yr.	Discharge (cfs)	D.O. (mg/l)	BOD_5 (mg/l)	COD (mg/l)	P (mg/l)	N (mg/l)	Coliform Bacteria MPN, MF	Reference Number

Remarks:

ERA

10.2. Municipal and Domestic Wastes a. Summary

Type of Treatment	Number of Sources	Total Volume (mgd)	Total Pop. Eq. Discharged	Reference Number
None				
Primary				
Intermediate				
Secondary, T.F.				
Secondary, A.S.				
Waste Stab. Lagoon				
AWT				
Septic Tanks				
Low Flow Augmentation				

A data table on each Major source of Municipal Waste follows this page.

Remarks _____

_____

10.2 contd

b. Waste or Treated Effluent Discharge Characteristics

(1) Name _____

(2) Reference Number _____

(3) Type of Treatment _____

(4) Location of Outfall: Lat. _____

Long. _____

(5) Treatment Characteristics

	Influent	Effluent
Volume (mgd)		
Temperature (°C.)		
B.O.D. (5 day, 20° C.)		
C.O.D. (mg/l)		
Suspended solids (mg/l)		
D.O. (mg/l)		
Coliform Bacteria (MPN, MF)		
Phosphates (mg/l)		
Nitrates (mg/l)		
Toxic Chemicals /1		

/1 Identify:

(6) (For Industries only) Type of Industry:

(7) Special Problems:

10.3. Industrial Wastes a. Summary

Type of Treatment	No. of Plants		Total Volume (mgd)	Total P.E. Discharged	Sus.Solids Discharged (lbs/day)	Reference Number
	Major	Total				
None						
Settling						
Conventional						
(a) Primary						
(b) Intermediate						
(c) Secondary, T.F.						
(d) Secondary, A.S.						
Waste Stab. Lagoon						
AWT						
Special /1						

/1 Identify:

b. Additional data tables (10.2. and 10.3.) on each Major Source of Industrial Waste should be inserted following this page.

10.4. AGRICULTURAL LAND DRAINAGE

Reference Number

a. Volume (cfs)_____

b. Quality

(1) Total Dissolved Solids (mg/l)_____ _____

(2) Nitrates (mg/l)_____ _____

(3) Phosphates (mg/l)_____ _____

(4) Pesticides (mg/l)_____ _____

10.5. THERMAL LOADS (Major power plants and Industrial Cooling Waters)

Type of Plant	Volume Discharged (mgd)	Effluent Temp. (°C.)	Temp. Rise across Plant (°C.)		Reference Number
			Winter	Summer	

10.6. DESALINIZATION PLANTS:

Operating

(a) Number

(b) Total Vol. (mgd)

(c) Temp. of Effluent

(d) TDS of Effluent

Planned or Under Construction

(e) Number

(f) Total Vol. (mgd)

10.7. RECREATIONAL FACILITIES

		Reference Number
a. Number of Boats using system	_____	_____
b. Number of Marina slips available		
(1) Total	_____	_____
(2) Not connected to sewers	_____	_____

10.8. SPECIAL PROBLEMS

_____

_____

_____

_____

_____

_____

_____

_____

11. Use Damages

It is likely that studies and estimates of damages to use will not be broken down to the smallest subsystem included in this inventory. In such cases, include the estimates at the smallest subsystem for which they are valid, and include in the tabulation for damaged subsystems the notation that damages within this ERA are included in the lower order system. For example, on Figure I suppose that damages to shellfisheries in H-1-2 have been estimated at $1,000,000 annually, due to pollution originating at outfalls Y and Z. The sum of $1,000,000 is reported as damages in H-1-2; and in the tabulation for H-1-2-1 there appears only a "Z", denoting that the information is included elsewhere. Note, however, that if the shellfishery in H-1-2-3 is not damaged, the damages for H-1-2-3 should be included as zero, even if the damages in other subsystems cannot be identified.

11. USE DAMAGES

11.1. NAVIGATION

a. Annual dredging and maintenance cost:

Year	Volume dredged (cu. yds.)	Cost ($)	Reference Number
1950			
1951			
1952			
1953			
1954			
1955			
1956			
1957			
1958			
1959			
1960			
1961			
1962			
1963			
1964			
1965			
1966			
1967			

Planned or under construction:_____

11.1 contd

b. Loss of Facilities

Type of Facility	Period of Loss (yrs)	Amount Lost		Value ($)	Cause	Reference Number
		Quantity	Units			
Dockage						
Anchorage						
Channels						
Other: (Identify)						

11.2. COMMERCIAL FISHING

a. Fishery Lost

Type of Fishery	Period of Loss (yrs)	Annual Amount of Catch Lost			Amount of Habitat Destroyed		Cause	Reference Number
		Quan.	Units	Value($)	Quan.	Units		
Finfish:								
(1) Anadromous								
(2) Resident								
(3) Transient								
Shellfish:								
(1) Oysters								
(2) Clams								
(3) Shrimp								
(4) Lobsters								
(5) Crabs								
(6) Scallops								

11.2 contd

b. SHELLFISHERY CLOSED

Type	Period of Closure (yrs.)	Productivity of closed area		Annual Value of Lost Production ($)	Area closed(acres) due to				Ref. No.
		Quan.	Units		Bacterial Contamination	Toxic Chemicals	Turbidity	Other (identify)	

ERA_____

11.3. RECREATION

a. BEACHES

Type of Damage	Amount		Usage Loss part. days	Cause	Reference Number
	Quantity	Units			
Closed					
Damaged					
Lost					

b. BOATING

(1) Cost of marina and associated channel maintenance ($) Ref. No.

(2) Increase in boat maintenance cost due to pollution ($)

(3) Special Problems:

11.3 contd

c. SPORT FISHING

Species	Period of Loss (yrs)	Amount of Loss Quantity	Amount of Loss Units	Value of Loss ($)	Cause	Reference Number

11.4. WILDLIFE (Commercial and Sport)

Type of Animal	Period of Loss (yrs)	Amount of Habitat Lost		Value of Loss (dollars)	Cause	Reference Number
		Quantity	Units			

11.5. Water Supply (Identify problems):

11.6. Mining and Mineral Recovery (Identify problems):

11.7. DAMAGE TO HABITAT

Type	Extent of Damage/1	Cause	Reference Number
Finfish: (1) Anadromous			
(2) Transient			
(3) Resident			
Shellfish: (1) Oysters			
(2) Clams			
(3) Scallops			
(4) Lobsters			
(5) Shrimp			
(6) Crabs			
(7) Other			
Waterfowl: (1) Migratory/2			
(2) Resident/2			
(3) Endangered/2			
Furbearers/2			
Others/2			

/1. No Damage = 1
Little Damage = 2
Moderate Damage = 3
Extensive Damage = 4
Species Present but Isolated = 5
Eliminated = 6

/2. Identify:

11.8. Other Problems (Epizootics, catastrophic damage)

_____

_____

_____

_____

_____

_____

12. Immediate Pollution Control Needs

These data are to be tabulated from the immediate needs reports in the form of a summary table for each ERA. These data must be compatible with the Water Quality Standards for each State.

12. IMMEDIATE POLLUTION CONTROL NEEDS

12.1. Waste Treatment

Treatment Requirement	No. of Sources	Total Vol. (mgd)	Cost		Ref. No.
			Capital	Annual	
No Improvement Necessary					
No Treatment to Primary					
No Treatment to Secondary					
No Treatment to AWT					
Primary to AWT					
Secondary to AWT					
Primary to Secondary					
Expansion of Present Treatment					
Combined Sewer Separation					
Storm Water Treatment					
Other (Specify)					

12.2 Physical or Hydrologic Modification

Type	Reason for Need	Cost	Reference Number

13. Water Quality Standards

The water quality criteria have been broken down into seven use categories which are consistent with the purposes of the water quality standards provisions of the law. The use categories established by the States for each ERA should be included in this table, but under the headings indicated.

Under the Use Areas show the number of separate areas reserved for each use within each ERA. This heading does not mean the total acreage involved, only the number of individual pieces.

13.1. Present Status

State whether standards have been approved. If so, give date.

13. WATER QUALITY STANDARDS

13.1. Present Status_____ Data_____

13.2. Water Quality Criteria

Use Category /1	Use Areas	Total	Area (acres)	
			Meeting Criteria as of 6/67	Not Meeting Criteria as of 6/67
1				
2				
3				
4				
5				
6				
7				
8				
9				

/1. Drinking water, untreated = 1

Shellfish harvesting (Direct Use) = 2

Habitat for fish and shellfish = 3

Recreational use, contact activities = 4

Recreational use, non-contact activities = 5

Municipal water supply, extensive treatment = 6

Industrial water supply, extensive treatment = 7

Navigation = 8

Agricultural water use = 9

13.3. Implementation Plan

Waste Source	Volume of Waste (mgd)	Treatment requirement	Date of Completion	Reference Number

13.4. Status of Enforcement Actions:

_____

_____

_____

_____

_____

_____

14. Past and Current Studies

Include all major studies which have been carried out, are currently underway, or are definitely scheduled to be carried out.

Emphasis should be on studies of water pollution and resource management.

14. **PAST AND CURRENT STUDIES**

Time of study (mo.,yr.)		Type of Study	Organization	Reference Number
Start	Finish			

REFERENCE DESCRIPTION -77- ERA_____

Reference Number_____

For Handbook page number_____

Author(s)_____

Title_____

ARTICLES:

Journal_____

Vol._____, No._____, p._____ - _____, Date_____

REPORTS:

Publisher_____

Date_____, Location_____

Reviewer's Evaluation of Data:_____

_____

Date of Study_____

_____

Reference Number_____

For Handbook page number_____

Author(s)_____

Title_____

ARTICLES:

Journal_____

Vol._____ No._____, p._____ - _____, Date_____

REPORTS:

Publisher_____

Date_____, Location_____

Reviewer's Evaluation of Data:_____

_____

Date of Study_____

_____

COMMENTS:

APPENDIX

NORTHEAST REGION

Estuarine Register Area	Name	State(s)
NE-1	Bay of Fundy	Maine and International
NE-1-1	St. Croix River	Maine and International
NE-1-1-1	Cobscook Bay	Maine and International
NE-1-1-1-1	Dennys and Whiting Bays	Maine
NE-1-2	Quoddy Roads	Maine and International
NE-1-3	Carrying Place Cove	Maine
NE-1-4	Baileys Mistake	Maine
NE-1-5	Little River	Maine
NE-2	Little Machias Bay	Maine
NE-3	Machias Bay	Maine
NE-4	Englishman and Chandler Bays	Maine
NE-5	Western, Pleasant, Naurauugus, and Pigeon Hill Bays	Maine
NE-6	Dyer and Gouldsboro Bays and Prospect Harbor	Maine
NE-7	Frenchmans Bay	Maine
NE-8	Blue Hill Bay	Maine
NE-9	Penobscot Bay	Maine
NE-9-1	Penobscot River	Maine
NE-9-2	Passagassawakeag River	Maine
NE-10	Muscongus Bay	Maine
NE-10-1	St. George River	Maine
NE-10-2	Meadowmac River	Maine
NE-11	Johns Bay	Maine
NE-12	Booth Bay	Maine
NE-13	Sheepscot Bay	Maine
NE-14	Kennebec River--Merrymeeting Bay	Maine
NE-14-1	Kennebec River	Maine
NE-14-2	Androscoggin River	Maine
NE-15	Casco Bay	Maine
NE-15-1	Portland Harbor	Maine
NE-16	Saco Bay	Maine
NE-17	Goosefare Bay	Maine
NE-18	Wells-Ogunquit	Maine
NE-19	York River	Maine and New Hampshire
NE-20	Portsmouth Harbor	Maine and New Hampshire
NE-21	New Hampshire South Coast	New Hampshire
NE-22	Merrimack River--Ipswich Bay	Massachusetts

NORTHEAST REGION

Estuarine Register Area	Name	State(s)
NE-22-1	Merrimack River	Massachusetts
NE-22-2	Plum Island Sound	Massachusetts
NE-22-3	Essex Bay	Massachusetts
NE-22-4	Annisquam River	Massachusetts
NE-23	Cape Ann	Massachusetts
NE-24	Gloucester Harbor	Massachusetts
NE-25	Salem, Marblehead, and Nahant Bays	Massachusetts
NE-26	Broad Sound	Massachusetts
NE-26-1	Boston-Hull Bay	Massachusetts
NE-26-1-1	Dorchester Bay	Massachusetts
NE-26-1-1-1	Boston Inner Harbor	Massachusetts
NE-26-1-2	Quincy Bay	Massachusetts
NE-26-1-3	Weymouth-Hingham-Hull Bays	Massachusetts
NE-27	Cohasset Harbor	Massachusetts
NE-28	New Inlet	Massachusetts
NE-29	Plymouth Bay	Massachusetts
NE-30	Cape Cod Bay	Massachusetts
NE-30-1	Center Hill	Massachusetts
NE-30-2	Cape Cod Canal	Massachusetts
NE-30-3	Barnstable Harbor	Massachusetts
NE-30-4	Wellfleet Harbor	Massachusetts
NE-30-5	Provincetown Harbor	Massachusetts
NE-31	Outer Cape Cod	Massachusetts
NE-31-1	Nauset Harbor	Massachusetts
NE-31-2	Chatham Harbor	Massachusetts
NE-32	Nantucket Sound	Massachusetts
NE-32-1	Harwich	Massachusetts
NE-32-2	Hyannis, Centerville, and Cotuit	Massachusetts
NE-32-3	Falmouth--Woods Hole	Massachusetts
NE-32-4	Elizabeth Islands	Massachusetts
NE-32-5	Martha's Vineyard	Massachusetts
NE-32-6	Nantucket Island	Massachusetts
NE-32-7	Monomoy Island	Massachusetts
NE-33	Buzzards Bay	Massachusetts
NE-33-1	Elizabeth Islands	Massachusetts
NE-33-2	West Barnstable Coast	Massachusetts
NE-33-3	SW Cape Cod Canal	Massachusetts
NE-33-4	Wareham Bay	Massachusetts

NORTHEAST REGION

Estuarine Register Area	Name	State(s)
NE-33-5	South Plymouth Coast	Massachusetts
NE-33-6	New Bedford Bay	Massachusetts
NE-33-7	Slocums River Bay	Massachusetts
NE-33-8	Horseneck Bay	Massachusetts
NE-34	Narragansett Bay	Rhode Island
NE-34-1	SE Rhode Island Coast	Rhode Island
NE-34-2	Sakonnet River	Rhode Island
NE-34-3	Newport South Shore	Rhode Island
NE-34-4	Narragansett East Passage	Rhode Island
NE-34-4-1	Mt. Hope Bay-Taunton River	Rhode Island
NE-34-4-2	Providence River	Rhode Island
NE-34-5	Narragansett West Passage	Rhode Island
NE-34-6	East Pt. Judith Coast	Rhode Island
NE-35	Long Island--Block Island Sound	Rhode Island, Connecticut, and New York
NE-35-1	Rhode Island Coast	Rhode Island
NE-35-2	Fishers Island Sound	Rhode Island, Connecticut
NE-35-3	Thames River	Connecticut
NE-35-4	Niantic Bay	Connecticut
NE-35-5	Connecticut River	Connecticut
NE-35-6	Guilford Coast	Connecticut
NE-35-7	New Haven Harbor	Connecticut
NE-35-8	Housatonic River	Connecticut
NE-35-9	Bridgeport	Connecticut
NE-35-10	Saugatuck River--Norwalk	Connecticut
NE-35-11	Port Chester--Stamford	Connecticut and New York
NE-35-12	West Long Island Sound	New York
NE-35-12-1	Little Neck Bay	New York
NE-35-12-2	Manhasset Bay	New York
NE-35-13	Hempstead Harbor	New York
NE-35-14	Oyster Bay	New York
NE-35-15	Huntington Bay	New York
NE-35-16	Smithtown Bay	New York
NE-35-17	Port Jefferson	New York
NE-35-18	Northeast Long Island	New York
NE-35-19	Gardiners Bay	New York
NE-35-20	Block Island	Rhode Island
NE-36	New York Bight	New York
NE-36-1	East Outer Long Island	New York
NE-36-1-1	Georgica Pond Inlet	New York
NE-36-1-2	Mecox Pond Inlet	New York
NE-36-2	Shinnecock Bay	New York
NE-36-3	Moriches Bay	New York

APPENDIX- A4

NORTHEAST REGION

Estuarine Register Area	Name	State(s)
NE-36-4	Great South Bay	New York
NE-36-5	Western Outer Long Island	New York
NE-36-5-1	Jones Inlet	New York
NE-36-5-2	East Rockaway Inlet	New York
NE-36-6	New York Harbor	New York and New Jersey
NE-36-6-1	Rockaway Inlet--Jamaica Bay	New York
NE-36-6-2	Newtown Creek	New York
NE-36-6-3	Hudson River	New York and New Jersey
NE-36-6-4	Hackensack River	New Jersey
NE-36-6-5	Passaic River	New Jersey
NE-36-6-6	Raritan River	New Jersey
NE-36-6-7	Shrewsbury River	New Jersey
NE-36-7	North Jersey Coast	New Jersey
NE-36-7-1	Shark River Inlet	New Jersey
NE-36-7-2	Manasquan Inlet	New Jersey
NE-36-8	Barnegat Coast	New Jersey
NE-36-9	Atlantic City Coast	New Jersey
NE-36-9-1	Beach Haven Inlet	New Jersey
NE-36-9-2	Brigantine Inlet	New Jersey
NE-36-9-3	Absecon Inlet	New Jersey
NE-36-9-4	Great Egg Harbor Inlet	New Jersey
NE-36-10	South Jersey Coast	New Jersey
NE-36-10-1	Corson Inlet	New Jersey
NE-36-10-2	Townsend Inlet	New Jersey
NE-36-10-3	Hereford Inlet	New Jersey
NE-36-10-4	Cape May Inlet	New Jersey
NE-37	Delaware Bay	New Jersey, Delaware, and Pa.
NE-37-1	Schuykill River	Pennsylvania
NE-38	Delaware Coast	Delaware
Ne-38-1	Indian River Bay	Delaware
NE-38-1-1	Rehoboth Bay	Delaware

APPENDIX-A5

MIDDLE ATLANTIC REGION

Estuarine Register Area	Name	State(s)
MA-1	Maryland Atlantic Coastal	Maryland
MA-1-1	Isle of Wight Bay and Assawoman Bay	Maryland & Delaware
MA-1-1-1	Little Assawoman Bay	Delaware & Maryland
MA-2	Chincoteague Coastal	Virginia
MA-2-1	Chincoteague Bay	Virginia & Maryland
MA-2-2	Metomkin Bay	Virginia
MA-3	Cape Charles Coastal	Virginia
MA-4	Chesapeake Bay	Virginia & Maryland
MA-4-1	Lynnhaven Bay	Virginia
MA-4-2	Little Creek	Virginia
MA-4-3	Hampton Roads	Virginia
MA-4-3-1	Willoughby Bay	Virginia
MA-4-3-2	Lafayette River	Virginia
MA-4-3-3	Elizabeth River	Virginia
MA-4-3-4	Nansemond River	Virginia
MA-4-3-5	James River	Virginia
MA-4-3-5-1	Pagan River	Virginia
MA-4-3-5-2	Lawnes Creek	Virginia
MA-4-3-5-3	Lower Chippokes Creek	Virginia
MA-4-3-5-4	Grays Creek	Virginia
MA-4-3-5-5	Upper Chippokes Creek	Virginia
MA-4-3-5-6	Wards Creek	Virginia
MA-4-3-5-7	Powell Creek	Virginia
MA-4-3-5-8	Bailey Creek	Virginia
MA-4-3-5-9	Appomattox River	Virginia
MA-4-3-5-10	Herring Creek	Virginia
MA-4-3-5-11	Queens Creek	Virginia
MA-4-3-5-12	Kittewan Creek	Virginia
MA-4-3-5-13	Chickahominy River	Virginia
MA-4-3-5-14	College Creek	Virginia
MA-4-3-5-15	Skiffes Creek	Virginia
MA-4-3-5-16	Warwick River	Virginia
MA-4-3-6	Hampton River	Virginia
MA-4-4	Back River	Virginia
MA-4-5	Poquoson River	Virginia
MA-4-6	York River	Virginia
MA-4-6-1	Pamunkey River	Virginia
MA-4-6-2	Mattaponi River	Virginia
MA-4-6-3	Poropotank River	Virginia
MA-4-6-4	Aberdeen Creek	Virginia
MA-4-6-5	Carter Creek	Virginia
MA-4-6-6	Poplar Creek	Virginia
MA-4-6-7	Timberneck Creek	Virginia
MA-4-6-8	King Creek and Felgates Creek	Virginia
MA-4-6-9	Queen Creek	Virginia
MA-4-6-10	Sarah Creek	Virginia
MA-4-6-11	Wormley Creek	Virginia

MIDDLE ATLANTIC REGION

Estuarine Register Area	Name	State(s)
MA-4-7	Mobjack Bay	Virginia
MA-4-7-1	Severn River	Virginia
MA-4-7-2	Ware River	Virginia
MA-4-7-3	North River	Virginia
MA-4-7-4	East River	Virginia
MA-4-8	Piankatank River	Virginia
MA-4-8-1	Milford Haven	Virginia
MA-4-9	Rappahannock River	Virginia
MA-4-9-1	Urbanna Creek	Virginia
MA-4-9-2	Lagrange Creek	Virginia
MA-4-9-3	Piscataway Creek	Virginia
MA-4-9-4	Cat Pt. Creek	Virginia
MA-4-9-5	Totuskey Creek	Virginia
MA-4-9-6	Farnham Creek	Virginia
MA-4-9-7	Lancaster Creek	Virginia
MA-4-9-8	Corrotoman River	Virginia
MA-4-10	Fleets Bay	Virginia
MA-4-11	Dividing Creek	Virginia
MA-4-12	Great Wicomico River	Virginia
MA-4-13	Little Wicomico River	Virginia
MA-4-14	Potomac River	D.C., Md., and Va.
MA-4-14-1	Coan River	Virginia
MA-4-14-2	Yeocomico River	Virginia
MA-4-14-3	Lower Machodoc Creek	Virginia
MA-4-14-4	Nomini Bay	Virginia
MA-4-14-5	Mattox Creek	Virginia
MA-4-14-6	Rosier Creek	Virginia
MA-4-14-7	Upper Machodoc Creek	Virginia
MA-4-14-8	Potomac Creek	Virginia
MA-4-14-9	Aquia Creek	Virginia
MA-4-14-10	Quantico Creek	Virginia
MA-4-14-11	Occoquan-Belmont Bay	Virginia
MA-4-14-12	Gunston Cove	Virginia
MA-4-14-13	Dogue Creek	Virginia
MA-4-14-14	Hunting Creek	Virginia
MA-4-14-15	Anacostia River	D.C. & Maryland
MA-4-14-16	Broad Creek	Maryland
MA-4-14-17	Piscataway Creek	Maryland
MA-4-14-18	Mattawoman Creek	Maryland
MA-4-14-19	Nanjemoy Creek	Maryland
MA-4-14-20	Port Tabacco River	Maryland
MA-4-14-21	Wicomico River	Maryland
MA-4-14-22	St. Clements Bay	Maryland
MA-4-14-23	Breton Bay	Maryland
MA-4-14-24	St. George Creek	Maryland
MA-4-14-25	St. Marys River	Maryland
MA-4-14-26	Smith Creek	Maryland

MIDDLE ATLANTIC REGION

Estuarine Register Area	Name	State(s)
MA-4-15	St. Jerome's Creek	Maryland
MA-4-16	Patuxent River	Maryland
MA-4-16-1	Cuckold Creek	Maryland
MA-4-16-2	Hunting Creek	Maryland
MA-4-16-3	Battle Creek	Maryland
MA-4-16-4	St. Leonard Creek	Maryland
MA-4-17	Rockhold Creek (Herring Bay)	Maryland
MA-4-18	West River	Maryland
MA-4-18-1	Rhode River	Maryland
MA-4-19	South River	Maryland
MA-4-20	Severn River	Maryland
MA-4-21	Magothy River	Maryland
MA-4-22	Bodkin Creek	Maryland
MA-4-23	Patapsco River	Maryland
MA-4-23-1	Rock Creek	Maryland
MA-4-23-2	Stony Creek	Maryland
MA-4-23-3	Curtis Creek	Maryland
MA-4-23-4	Inner Harbor (Baltimore)	Maryland
MA-4-23-5	Bear Creek	Maryland
MA-4-23-6	Old Road Bay	Maryland
MA-4-24	Back River	Maryland
MA-4-25	Middle River-Seneca Creek	Maryland
MA-4-26	Gunpowder River	Maryland
MA-4-27	Bush River	Maryland
MA-4-28	Romney Creek	Maryland
MA-4-29	Susquehanna River	Maryland
MA-4-30	Northeast River	Maryland & Pennsylvania
MA-4-31	Elk River	Maryland
MA-4-31-1	Back Creek	Maryland
MA-4-31-2	Bohemia River	Maryland
MA-4-32	Sassafras River	Maryland
MA-4-33	Still Pond Creek-Churn Creek	Maryland
MA-4-34	Worton Creek	Maryland
MA-4-35	Fairlee Creek	Maryland
MA-4-36	Swan Creek	Maryland
MA-4-37	Chester River	Maryland
MA-4-37-1	Langford Creek	Maryland
MA-4-37-2	Southeast Creek	Maryland
MA-4-37-3	Corsica River	Maryland
MA-4-37-4	Grays Inn Creek	Maryland
MA-4-38	Eastern Bay	Maryland
MA-4-38-1	Cox Creek	Maryland
MA-4-38-2	Crab Alley Bay	Maryland
MA-4-38-3	Prospect Bay (K.I. Narrows)	Maryland
MA-4-38-4	Greenwood Creek	Maryland
MA-4-38-5	Wye River	Maryland
MA-4-38-6	Miles River	Maryland

APPENDIX-A8

MIDDLE ATLANTIC REGION

Estuarine Register Area	Name	State(s)
MA-4-39	Choptank River	Maryland
MA-4-39-1	Harris Creek	Maryland
MA-4-39-2	Broad Creek	Maryland
MA-4-39-3	Tred Avon River	Maryland
MA-4-39-4	Tuckahoe Creek	Maryland
MA-4-40	Little Choptank River	Maryland
MA-4-41	Honga River	Maryland
MA-4-42	Tangier Sound	Maryland
MA-4-42-1	Fishing Bay	Maryland
MA-4-42-2	Nanticoke River	Maryland
MA-4-42-3	Wicomico River	Maryland
MA-4-42-4	Manokin River	Maryland
MA-4-42-5	Big Annemessex River	Maryland
MA-4-42-6	Little Annemessex River	Maryland
MA-4-43	Pocomoke Sound	Virginia & Maryland
MA-4-43-1	Pocomoke River	Virginia & Maryland
MA-4-44	Onancock Creek	Virginia
MA-4-45	Pungoteague Creek	Virginia
MA-4-46	Nandua Creek	Virginia
MA-4-47	Occohannock Creek	Virginia
MA-4-48	Nassawadox Creek	Virginia
MA-4-49	Hungar Creek	Virginia
MA-4-50	Cherrystone Inlet	Virginia
MA-4-51	Craddock Creek	Virginia
MA-4-52	Horn Harbor	Virginia
MA-4-53	Winter Harbor	Virginia
MA-4-54	Old Plantation	Virginia
MA-5	Outer Banks Coastal	North Carolina
MA-5-1	Pamlico Sound	North Carolina
MA-5-1-1	West Bay	North Carolina
MA-5-1-2	Neuse River	North Carolina
MA-5-1-3	Bay River	North Carolina
MA-5-1-4	Pamlico River	North Carolina
MA-5-1-4-1	Pungo River	North Carolina
MA-5-1-5	Albemarle Sound	North Carolina
MA-5-1-5-1	Alligator River	North Carolina
MA-5-1-5-2	Roanoke River-Batchelor Bay	North Carolina
MA-5-1-5-3	Perguimans River	North Carolina
MA-5-1-5-4	Little River	North Carolina
MA-5-1-5-5	Pasquotank River	North Carolina
MA-5-1-5-6	North River	North Carolina
MA-5-1-5-7	Currituck Sound	North Carolina & Va.
MA-5-1-5-7-1	Back Bay	Virginia
MA-5-1-5-8	Edenton Bay	North Carolina
MA-5-1-5-9	Scuppernong River and Bull Bay	North Carolina
MA-6	Beaufort, N. C., Coastal	North Carolina
MA-6-1	Bogue Sound	North Carolina
MA-6-2	Newport River	North Carolina
MA-6-3	North River	North Carolina

APPENDIX-A9

MIDDLE ATLANTIC REGION

Estuarine Register Area	Name	State(s)
MA-6-4	Back Sound	North Carolina
MA-6-4-1	Core Sound	North Carolina
MA-7	White Oak River Coastal	North Carolina
MA-7-1	White Oak River	North Carolina
MA-8	North Carolina Coastal	North Carolina
MA-8-1	New River	North Carolina
MA-9	Cape Fear to Pawleys Inlet Coastal	North and South Carolina
MA-9-1	Murrells Inlet	North Carolina
MA-9-2	Little River Inlet	North and South Carolina
MA-9-3	Shallotte Inlet	North Carolina
MA-9-4	Lockwoods Folly Inlet	North Carolina
MA-9-5	Cape Fear River	North Carolina
MA-10	Pawleys Inlet to Bull Island Coastal	South Carolina
MA-10-1	Bull Bay	South Carolina
MA-10-2	Romain River	South Carolina
MA-10-3	Santee River	South Carolina
MA-10-4	Winyah Bay	South Carolina
MA-11	Charleston Coastal	South Carolina
MA-11-1	Stono River	South Carolina
MA-11-2	Ashley River	South Carolina
MA-11-3	Cooper River	South Carolina
MA-11-3-1	Wando River	South Carolina
MA-11-4	Dewees Inlet	South Carolina
MA-12	St. Helena Coastal	South Carolina
MA-12-1	South Edisto River	South Carolina
MA-12-2	Harbor River	South Carolina
MA-12-3	North Edisto River	South Carolina
MA-13	Port Royal Sound	South Carolina
MA-13-1	Beaufort River	South Carolina
MA-13-2	Broad River	South Carolina
MA-13-3	Chechessee River	South Carolina
MA-14	Savannah Estuary	South Carolina
MA-14-1	Calibogue Sound	South Carolina
MA-14-2	Savannah River	Georgia and South Carolina

SOUTHEAST REGION

Estuarine Register Areas	Name	State(s)
SE-1	Wassaw Sound	Georgia
SE-1-1	Tybee River	Georgia
SE-1-2	Wilmington River	Georgia
SE-2	Ossabaw Sound	Georgia
SE-2-1	Little Ogeechee River	Georgia
SE-2-1-1	Vernon River	Georgia
SE-2-2	Ogeechee River	Georgia
SE-3	St. Catherine River	Georgia
SE-3-1	Bear River	Georgia
SE-3-2	North Newport River	Georgia
SE-4	Sapelo Sound	Georgia
SE-4-1	South Newport River	Georgia
SE-4-2	Mud River	Georgia
SE-5	Doboy Sound	Georgia
SE-6	Altamaha Sound	Georgia
SE-6-1	Hampton River	Georgia
SE-7	St. Simons Sound	Georgia
SE-7-1	Frederica River	Georgia
SE-8	St. Andrew Sound	Georgia
SE-8-1	Little Satilla River	Georgia
SE-8-2	Cumberland River	Georgia
SE-9	St. Mary's River	Georgia and Florida
SE-9-1	Amelia River	Florida
SE-9-2	Cumberland Sound	Georgia
SE-10	Nassau Sound	Florida
SE-10-1	South Amelia River	Florida
SE-11	St. Johns River	Florida
SE-11-1	Ft. George River	Florida
SE-11-2	Trout River	Florida
SE-11-3	Intracoastal Waterway (Pablo Creek)	Florida
SE-12	St. Augustine	Florida
SE-12-1	Tolomato River	Florida
SE-13	Matanzas Coastal	Florida
SE-13-1	Matanzas River (North)	Florida
SE-13-2	Matanzas River (South)	Florida
SE-14	Ponce De Leon Coastal	Florida
SE-14-1	Halifax River	Florida
SE-14-2	Mosquito Lagoon	Florida
SE-15	Canaveral Bight	Florida
SE-15-1	Banana River	Florida

SOUTHEAST REGION

Estuarine Register Area	Name	State(s)
SE-15-1-1	Indian River	Florida
SE-16	Sebastian Inlet Coastal	Florida
SE-16-1	Indian River	Florida
SE-17	Fort Pierce Coastal	Florida
SE-17-1	Indian River (South)	Florida
SE-17-2	Indian River (North)	Florida
SE-18	St. Lucie Inlet Coastal	Florida
SE-18-1	Indian River	Florida
SE-18-2	St. Lucie River	Florida
SE-19	Jupiter Inlet Coastal	Florida
SE-19-1	Jupiter Sound	Florida
SE-19-2	Lake Worth Creek	Florida
SE-20	Palm Beach	Florida
SE-21	Fort Lauderdale	Florida
SE-22	Biscayne Bay Coastal	Florida
SE-22-1	Biscayne Bay	Florida
SE-22-1-1	Upper Biscayne Bay	Florida
SE-22-1-2	Card Sound	Florida
SE-22-1-2-1	Barnes Sound	Florida
SE-23	Florida Keys (Hawk Channel)	Florida
SE-23-1	Florida Keys	Florida
SE-23-1-1	Blackwater Sound	Florida
SE-24	Key West	Florida
SE-25	Everglades	Florida
SE-26	Southwest Forida Coast	Florida
SE-26-1	Big Marco River	Florida
SE-26-2	Naples Bay	Florida
SE-27	Port Charlotte Harbor	Florida
SE-27-1	Estero Bay	Florida
SE-27-2	Pine Island Sound	Florida
SE-27-3	Caloosahatchee River	Florida
SE-27-4	Myakka River	Florida
SE-27-5	Peace River	Florida
SE-27-6	Gasparilla Sound	Florida
SE-28	Lemon Bay	Florida
SE-29	Little Sarasota Bay	Florida
SE-30	Tampa Bay	Florida
SE-30-1	Sarasota Bay	Florida
SE-30-2	Manate River	Florida
SE-30-3	Terra Ciego Bay	Florida
SE-30-4	Little Manatee River	Florida

SOUTHEAST REGION

Estuarine Register Area	Name	State(s)
SE-30-5	Hillsborough Bay	Florida
SE-30-5-1	McKay Bay	Florida
SE-30-6	Old Tampa Bay	Florida
SE-30-7	Boca Ciega Bay	Florida
SE-31	St. Joseph Sound	Florida
SE-31-1	Clearwater Harbor	Florida
SE-31-2	Anclote River	Florida
SE-32	St. Martins Reef	Florida
SE-33	Cedar Keys Coastal	Florida
SE-33-1	Chassahowitzka River	Florida
SE-33-2	Homosassa River	Florida
SE-33-3	St. Martins River	Florida
SE-33-4	Crystal River	Florida
SE-33-5	Withlacoochee River	Florida
SE-33-6	Wacasassa River	Florida
SE-34	Suwanne River Coastal	Florida
SE-34-1	Suwanne River	Florida
SE-35	Deadman Bay	Florida
SE-35-1	Steinhatchee River	Florida
SE-35-2	Fenholloway River	Florida
SE-36	Apalachee Bay	Florida
SE-36-1	Econfina River	Florida
SE-36-2	Aucilla River	Florida
SE-36-3	St. Marks River	Florida
SE-36-4	Oyster Bay	Florida
SE-36-5	Ochlockonee River	Florida
SE-37	Apalachicola Coastal	Florida
SE-37-1	St. George Sound	Florida
SE-37-1-1	Carabelle River	Florida
SE-37-2	Apalachicola Bay	Florida
SE-37-2-1	East Bay	Florida
SE-37-2-2	Apalachicola River--Lake Wimico	Florida
SE-37-3	St. Vincent Sound	Florida
SE-38	St. Joseph Bay Coastal	Florida
SE-38-1	St. Joseph Bay	Florida
SE-39	St. Andrew Bay	Florida
SE-39-1	St. Andrew Sound	Florida
SE-39-2	East Bay	Florida
SE-39-3	West Bay	Florida
SE-39-4	North Bay	Florida
SE-40	Choctawatchee Bay	Florida

SOUTHEAST REGION

Estuarine Register Area	Name	State(s)
SE-40-1	The Narrows	Florida
SE-41	Pensacola Bay	Florida
SE-41-1	Big Lagoon	Florida
SE-41-2	Santa Rosa Sound	Florida
SE-41-3	East Bay	Florida
SE-41-4	Escambia Bay	Florida
SE-42	Perdido Bay	Alabama
SE-42-1	Wolf Bay	Alabama
SE-43	Mobile Bay	Alabama
SE-43-1	Bon Secour Bay	Alabama
SE-43-1-1	Bon Secour River-Oyster Bay	Alabama
SE-43-1-2	Weeks Bay	Alabama
SE-43-2	Little Lagoon	Alabama
SE-43-3	Mobile Delta	Alabama
SE-44	Mississippi Sound	Alabama
SE-44-1	Portersville Bay	Alabama
SE-44-2	Pascagoula River	Mississippi
SE-44-3	Biloxi Bay	Mississippi
SE-44-4	Bay St. Louis	Mississippi
SE-44-5	Lake Borgne	Mississippi
SE-44-5-1	Lake Pontchartrain	Mississippi
SE-44-5-2	Pearl River	Mississippi
SE-45	St. Thomas (Virgin Islands)	Virgin Islands
SE-46	St. John (Virgin Islands)	Virgin Islands
SE-47	St. Croix (Virgin Islands)	Virgin Islands
SE-48	Puerto Rico	Puerto Rico
SE-48-1	San Juan Harbor	Puerto Rico
SE-48-2	Arecibo	Puerto Rico
SE-48-3	Bahia De Aguadilla	Puerto Rico
SE-48-4	Mayaquez	Puerto Rico
SE-48-4-1	Mayaquez Bay	Puerto Rico
SE-48-5	Puerto Rico South Coast	Puerto Rico
SE-48-5-1	Bahia Montalya	Puerto Rico
SE-48-5-2	Ponce	Puerto Rico
SE-48-5-3	Guayama	Puerto Rico
SE-48-6	Puerto Rico Southeast Coast	Puerto Rico
SE-48-7	Puerto Rico East Coast	Puerto Rico
SE-48-8	Culebra Island	Puerto Rico
SE-48-9	Vieques Island	Puerto Rico
SE-48-10	Puerto Rico Northeast Coast	Puerto Rico

SOUTH CENTRAL REGION

Estuarine Register Area	Name	State(s)
SC-1	Padre Island, Brazos Island	Texas and International
SC-1-1	Rio Grande	Texas and International
SC-1-2	Laguna Madre	Texas
SC-1-2-1	South Bay	Texas
SC-1-2-2	Port Isabel & South Padre	Texas
SC-1-2-3	Arroyo Colorado Drainage	Texas
SC-1-2-4	Baffin Bay	Texas
SC-2	Mustang Island & St. Joseph Island	Texas
SC-2-1	Corpus Christi Bay	Texas
SC-2-1-1	Oso Bay	Texas
SC-2-1-2	Corpus Christi Ship Channel	Texas
SC-2-1-3	Nueces Bay	Texas
SC-2-1-4	Ingleside Cove	Texas
SC-2-1-5	Redfish Bay	Texas
SC-2-2	Aransas Bay	Texas
SC-2-2-1	Copano Bay	Texas
SC-2-2-1-1	Port Bay	Texas
SC-2-2-1-2	Aransas River	Texas
SC-2-2-1-3	Mission Bay	Texas
SC-2-2-1-4	Copano Creek	Texas
SC-2-2-2	St. Charles Bay	Texas
SC-2-2-3	Mesquite Bay	Texas
SC-2-2-4	Cedar Bayou	Texas
SC-3	Matagorda Island	Texas
SC-3-1	South San Antonio Bay	Texas
SC-3-1-1	North San Antonio Bay	Texas
SC-3-1-1-1	Guadalupe Bay	Texas
SC-3-1-1-1-1	Guadalupe River	Texas
SC-3-1-1-1-2	Victoria Barge Canal	Texas
SC-4	Matagorda Peninsula	Texas
SC-4-1	Matagorda Bay	Texas
SC-4-1-1	Powderhorn Bay	Texas
SC-4-1-2	Lavaca Bay	Texas
SC-4-1-2-1	Chocolate Bay	Texas
SC-4-1-2-2	Port Lavaca Harbor	Texas
SC-4-1-2-3	Upper Lavaca Bay	Texas
SC-4-1-2-4	Point Comfort Harbor	Texas
SC-4-1-2-5	Cox Bay	Texas
SC-4-1-2-6	Keller Bay	Texas
SC-4-1-3	Carancahua Bay	Texas
SC-4-1-4	Turtle Bay and Tres Palacios Bays	Texas
SC-5	Mouth of Colorado to South of Brazos River Mouth	Texas
SC-5-1	Colorado River	Texas
SC-5-1-1	East Matagorda Bay	Texas
SC-5-2	Caney Creek	Texas
SC-5-3	San Bernard River	Texas
SC-5-3-1	Cedar Lakes	Texas

SOUTH CENTRAL REGION

Estuarine Register Area	Name	State(s)
SC-5-3-1-1	Cedar Lake Bayou	Texas
SC-5-3-2	Jones Creek	Texas
SC-6	South Point to Rattlesnake Point	Texas
SC-6-1	Brazos River	Texas
SC-6-2	Freeport Harbor	Texas
SC-6-2-1	Intracoastal Waterway	Texas
SC-6-2-1-1	Oyster Creek	Texas
SC-7	High Island to Rattlesnake Drum Bays	Texas
SC-7-1	West Bay	Texas
SC-7-1	Christmas Bay	Texas
SC-7-1-2	Bastrup Bay	Texas
SC-7-1-3	Chocolate Bayou	Texas
SC-7-1-4	Jones Lake	Texas
SC-7-1-5	Offatta Bayou	Texas
SC-7-2	Galveston Bay	Texas
SC-7-2-1	Galveston City - Pelican Island Comple	Texas
SC-7-2-2	Texas City Complex	Texas
SC-7-2-2-1	Swan Lake	Texas
SC-7-2-3	Moses Lake	Texas
SC-7-2-4	Dickinson Bay	Texas
SC-7-2-5	Clear Lake	Texas
SC-7-2-6	Houston Ship Channel	Texas
SC-7-2-6-1	San Jacinto Bay	Texas
SC-7-2-6-2	Morgans Point to Cedar Point to Tabbs Bay	Texas
SC-7-2-6-3	Scott Bay	Texas
SC-7-2-6-4	Burnett Bay	Texas
SC-7-2-6-5	Peggy Lake	Texas
SC-7-2-6-6	Upper Houston Ship Channel	Texas
SC-7-2-7	Trinity Bay	Texas
SC-7-2-7-1	Trinity River	Texas
SC-7-2-7-2	Lake Anahuac	Texas
SC-7-2-8	East Bay	Texas
SC-8	High Island to Texas Point	Texas
SC-9	Sabine Pass	Texas - Louisiana
SC-9-1	Sabine Lake	Louisiana
SC-9-2	Port Arthur Harbor	Louisiana
SC-9-1-1	Neches River to Humble Island	Louisiana
SC-9-1-2	Sabine River	Louisiana
SC-10	Louisiana Point to West Jetty	Louisiana
SC-11	Calcasieu Pass to Calcasieu Lake	Louisiana
SC-11-1	Calcasieu Lake	Louisiana
SC-11-1-1	Calcasieu River Above Intracoastal Waterway	Louisiana
SC-12	Calcasieu Pass to Freshwater Canal	Louisiana
SC-12-1	Mermentau River	Louisiana
SC-13	Point au Fer to Freshwater Canal	Louisiana

SOUTH CENTRAL REGION

Estuarine Register Area	Name	State(s)
SC-13-1	Vermilion Bay	Louisiana
SC-13-1-1	Weeks Bay	Louisiana
SC-13-2	Atchafalaya Bay	Louisiana
SC-13-2-1	East Cote Blanche Bay	Louisiana
SC-13-2-1-1	West Cote Blanche Bay	Louisiana
SC-13-2-2	Wax Lake	Louisiana
SC-13-2-3	Lower Atchafalaya River	Louisiana
SC-13-2-4	Fourleague Bay	Louisiana
SC-14	Point au Fer to 90° 50'	Louisiana
SC-14-1	Caillou Bay	Louisiana
SC-15	90° 50' to Bayou Fourchon	Louisiana
SC-15-1	Terrebonne Bay	Louisiana
SC-15-1-1	Lake Pelto	Louisiana
SC-15-1-2	Lake Barre	Louisiana
SC-15-1-3	Lake Felicity	Louisiana
SC-15-2	Timbalier Bay	Louisiana
SC-15-2-1	Lake Rollover (Raccourci)	Louisiana
SC-15-2-1-1	Little Lake	Louisiana
SC-16	Bayou Fourchon to Fontanell Bayou	Louisiana
SC-16-1	Barataria Bay	Louisiana
SC-16-2	Caminada Bay	Louisiana
SC-16-3	Bay Des Ilettes	Louisiana
SC-16-4	Bay Ranquilles	Louisiana
SC-16-4-1	Lake Grande Ecoille	Louisiana
SC-16-5	Bastian Bay	Louisiana
SC-16-5-1	Adams Bay	Louisiana
SC-17	Mississippi Delta	Louisiana
SC-17-1	Scofield Bay	Louisiana
SC-17-2	Sandypoint Bay	Louisiana
SC-17-3	Tiger Pass to Southwest Pass	Louisiana
SC-17-4	Southwest Pass to Mississippi River	Louisiana
SC-17-5	East Bay	Louisiana
SC-17-6	South Pass	Louisiana
SC-17-7	Garden Island Bay	Louisiana
SC-17-8	Pass a' Loutre	Louisiana
SC-17-9	Main Pass	Louisiana
SC-17-10	Pass a' Loutre to Main Pass	Louisiana
SC-18	Breton Island-Miss. River Gulf Outlet	Louisiana
SC-19	Chandeleur Sound	Louisiana
SC-19-1	Mississippi River-Gulf Outlet	Louisiana

SOUTHWEST REGION

Estuarine Register Area	Name	State(s)
SW-1	Pelican Bay	California
SW-1-1	Chetco River	California
SW-1-2	Smith River	California
SW-2	Klamath Coastal	California
SW-2-1	Klamath River	California
SW-3	Humboldt Coastal	California
SW-3-1	Mad River	California
SW-3-2	Humboldt Bay	California
SW-3-3	Eel River	California
SW-4	Mendocino Coastal	California
SW-5	Sonoma Coastal	California
SW-5-1	Bodega Bay	California
SW-5-1-1	Tamales Bay	California
SW-6	San Francisco Coastal	California
SW-6-1	Drakes Bay	California
SW-6-2	Bolinas Bay	California
SW-6-3	San Francisco Bay	California
SW-6-3-1	Richardson Bay	California
SW-6-3-2	San Pablo Bay	California
SW-6-3-2-1	Petaluma River	California
SW-6-3-2-2	Napa River	California
SW-6-3-2-3	Suisun Bay	California
SW-6-3-2-3-1	Sacramento River--San Joaquin Delta	California
SW-7	San Mateo Coastal	California
SW-7-1	Half Moon Bay	California
SW-8	Monter	California
SW-8-1	Santa Cruz Harbor	California
SW-8-2	Pajaro River	California
SW-8-3	Elkhorn Slough	California
SW-8-4	Salinas River	California
SW-8-5	Monter	California
SW-8-6	Carmel Bay	California
SW-9	Big Sur Coastal	California
SW-10	San Luis Obispo Coastal	California
SW-10-1	Estero Bay	California
SW-10-1-1	Morro Bay	California
SW-10-2	San Luis Obispo Bay	California
SW-11	Santa Barbara Coastal	California
SW-11-1	Santa Barbara	California
SW-11-2	Ventura	California

SOUTHWEST REGION

Estuarine Register Area	Name	State(s)
SW-11-3	Port Hueneme	California
SE-11-4	Pt. Muga	California
SW-12	Santa Barbara Channel Islands	California
SW-13	Santa Catalina Group	California
SW-13-1	San Nicholas Island	California
SW-13-2	Santa Barbara Island	California
SW-13-3	Santa Catalina Island	California
SW-13-4	San Clemente Island	California
SW-14	Santa Monica Bay	California
SW-15	Santa Catalina Coastal	California
SW-15-1	San Pedro Bay	California
SW-15-2	Newport Bay	California
SW-16	San Diego Coastal	California and International
SW-16-1	Mission Bay	California
SW-16-2	San Diego Bay	California
SW-17	Hawaii	Hawaii
SW-17-1	Hamakua Coastal	Hawaii
SW-17-2	Hilo Bay	Hawaii
SW-18	Hawaii	Hawaii
SW-19	Hawaii	Hawaii
SW-20	Hawaii	Hawaii
SW-21	Maui	Hawaii
SW-22	Maui	Hawaii
SW-23	Maui	Hawaii
SW-24	Kahoolawe	Hawaii
SW-25	Lanai	Hawaii
SW-26	Molokai	Hawaii
SW-27	Oahu	Hawaii
SW-27-1	Kaneohe Bay	Hawaii
SW-28	Oahu	Hawaii
SW-28-1	Honolulu Coastal	Hawaii
SW-28-2	Pearl Harbor	Hawaii
SW-29	Oahu	Hawaii
SW-30	Oahu	Hawaii
SW-31	Kauai	Hawaii
SW-32	Kauai	Hawaii
SW-32-1	Nawiliwili Harbor	Hawaii
SW-33	Kauai	Hawaii
SW-34	Kauai	Hawaii

SOUTHWEST REGION

Estuarine Register Area	Names	State(s)
SW-35	Niihau	Hawaii
SW-36	Guam	Guam
SW-36-1	Port Merizo Lagoon	Guam
SW-36-2	Apra Harbor	Guam
SW-36-3	Agana Bay	Guam
SW-37	Samoa Islands	Samoa
SW-38	Samoa Islands	Samoa
SW-38-1	Pago Pago Harbor	Pago Pago

APPENDIX-A20

NORTHWEST REGION

Estuary Designation Numbers	Name	State(s)
NW-1	Rogue River Coastal	Oregon
NW-1-1	Rogue River	Oregon
NW-2	Coquille Coastal	Oregon
NW-2-1	Coquille River	Oregon
NW-3	Oregon Dunes Coastal	Oregon
NW-3-1	Coos Bay	Oregon
NW-3-1-1	Coos River	Oregon
NW-3-2	Umpqua River	Oregon
NW-3-3	Siuslaw River	Oregon
NW-4	Yaquina Coastal	Oregon
NW-4-1	Alsea River	Oregon
NW-4-2	Yaquina Bay/River	Oregon
NW-5	Cascade Head Coastal	Oregon
NW-5-1	Siletz Bay/River	Oregon
NW-5-2	Salmon River	Oregon
NW-5-3	Nestucca Bay/River	Oregon
NW-5-4	Sand Lake	Oregon
NW-6	Neahkanie Coastal	Oregon
NW-6-1	Netarts Bay	Oregon
NW-6-2	Tillamook Bay	Oregon
NW-6-3	Nehalem River	Oregon
NW-7	Columbia River Coastal	Oregon
NW-7-1	Columbia River	Oregon
NW-7-1-1	Baker Bay	Oregon
NW-7-1-2	Youngs Bay	Oregon
NW-7-1-3	Willamette River	Oregon
NW-8	Grays Harbor Coastal	Washington
NW-8-1	Willapa Bay	Washington
NW-8-1-1	Naselle River	Washington
NW-8-1-2	Willapa River	Washington
NW-8-2	Grays Harbor	Washington
NW-8-2-1	Chehalis River	Washington
NW-9	Destruction Island Coastal	Washington
NW-9-1	Quinault River	Washington
NW-9-2	Queets River	Washington
NW-9-3	Hoh River	Washington
NW-9-4	Quillayute River	Washington
NW-10	Strait of Juan De Fuca	Washington & Canada
NW-10-1	San Juan Islands	Washington & Canada
NW-10-1-1	Bellingham - Anacortes	Washington
NW-10-1-1-1	Nooksack River	Washington
NW-10-2	Puget Sound	Washington
NW-10-2-1	Hood Canal	Washington
NW-10-2-2	Whidby Island	Washington
NW-10-2-2-1	Skagit River	Washington
NW-10-2-2-2	Stillaguamish River	Washington
NW-10-2-2-3	Snohomish River	Washington
NW-10-2-3	Elliot Bay	Washington

APPENDIX-A21

NORTHWEST REGION

Estuary Designation Numbers	Name	State(s)
NW-10-2-3-1	Duwamish River	Washington
NW-10-2-4	Commencement Bay	Washington
NW-10-2-4-1	Puyallup River	Washington
NW-10-2-5	South Sound	Washington
NW-10-2-5-1	Nisqually River	Washington
NW-11	Alaska Southeast Coast	Alaska & Canada
NW-11-1	Clarence Strait	Alaska
NW-11-1-1	Behm Canal	Alaska
NW-11-1-2	Tongass Narrows	Alaska
NW-11-2	Sumner Strait	Alaska
NW-11-3	Cordova Bay	Alaska
NW-11-4	Bucarelli Bay	Alaska
NW-11-5	Chatham Strait-Icy Strait	Alaska
NW-11-5-1	Frederick Sound	Alaska
NW-11-5-1-1	Stephens Passage	Alaska
NW-11-5-1-1-1	Gastineau Channel	Alaska
NW-11-5-1-1-2	Auke Bay	Alaska
NW-11-5-2	Cynn Canal	Alaska
NW-11-5-3	Glacier Bay	Alaska
NW-12	Yakutat Coastal	Alaska
NW-12-1	Lituya Bay	Alaska
NW-12-2	Yakutat Bay	Alaska
NW-12-3	Icy Bay	Alaska
NW-13	Kenai Peninsula Coastal	Alaska
NW-13-1	Controller Bay	Alaska
NW-13-2	Prince William Sound	Alaska
NW-13-2-1	Port Valdez	Alaska
NW-13-2-2	Orca Inlet	Alaska
NW-13-2-3	Port Wells	Alaska
NW-13-3	Resurrection Bay	Alaska
NW-13-4	Nuka Bay	Alaska
NW-14	Cook Inlet	Alaska
NW-14-1	Turnagain Arm	Alaska
NW-14-2	Knik Arm	Alaska
NW-14-3	Susitna River	Alaska
NW-14-4	Kachemak Bay	Alaska
NW-15	Kodiak Island	Alaska
NW-15-1	Chiniak Bay	Alaska
NW-15-2	Marmot Bay	Alaska
NW-15-3	Ugak Bay	Alaska
NW-15-4	Kaguyak Bay	Alaska
NW-15-5	Alitak Bay	Alaska
NW-15-6	Uyak Bay	Alaska
NW-15-7	Uganik Bay	Alaska
NW-16	Alaska Peninsula Coastal	Alaska
NW-16-1	Kukak Bay	Alaska
NW-16-2	Katmai Bay	Alaska
NW-16-3	Portage Bay	Alaska
NW-16-4	Chignik Bay	Alaska

NORTHWEST REGION

Estuary Designation Numbers	Name	State(s)
NW-16-5	Stepovak Bay	Alaska
NW-16-6	Paulof Bay	Alaska
NW-16-7	Cold Bay	Alaska
NW-16-8	Morzhoroi Bay	Alaska
NW-17	Aleutian Islands	Alaska
NW-17-1	Unimak Island	Alaska
NW-17-2	Fox Islands	Alaska
NW-17-2-1	Unalaska Bay	Alaska
NW-17-2-1-1	Dutch Harbor	Alaska
NW-17-2-2	Makushin Bay	Alaska
NW-17-3	Andreanof Islands	Alaska
NW-17-3-1	Nazan Bay	Alaska
NW-17-3-2	Korovin Bay	Alaska
NW-17-3-3	Koluk Bay	Alaska
NW-17-4	Rat Islands	Alaska
NW-17-4-1	Aonchitka Island	Alaska
NW-17-4-2	Kiska Island	Alaska
NW-17-5	Near Islands	Alaska
NW-17-5-1	Agattu Island	Alaska
NW-17-5-2	Attu Island	Alaska
NW-18	Bering Sea Islands	Alaska
NW-19	Bristol Bay	Alaska
NW-19-1	Port Moller	Alaska
NW-19-2	Port Heiden	Alaska
NW-19-3	Ugashik Bay	Alaska
NW-19-4	Egegik Bay	Alaska
NW-19-5	Kvichak Bay	Alaska
NW-19-6	Nushagak Bay	Alaska
NW-20	Kuskokwim Bay	Alaska
NW-20-1	Goodnews Bay	Alaska
NW-21	Norton Sound	Alaska
NW-21-1	Yukon River	Alaska
NW-21-2	Norton Bay	Alaska
NW-21-3	Golovnin Bay	Alaska
NW-21-4	Port Clarence	Alaska
NW-22	Kotzebue Sound	Alaska
NW-23	Chukchi Sea Coastal	Alaska
NW-24	Beaufort Sea	Alaska & Canada

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